# User Manual

## Interfaces

# RGB 203 Rxi

Universal Video Interface with Audio

Extron® Electronics

INTERFACING, SWITCHING AND CONTROL

68-655-01 **Rev. C**
03 10

# Precautions

## Safety Instructions • English

**This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.**

**This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.**

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

### Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Consignes de Sécurité • Français

**Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).**

**Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.**

### Attention

**Lire les instructions**• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conserver les instructions**• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

### Avertissement

**Alimentations**• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

**Déconnexion de l'alimentation**• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

## Sicherheitsanleitungen • Deutsch

**Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.**

**Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.**

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

### Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

## Instrucciones de seguridad • Español

**Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.**

**Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.**

### Precaucion

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

### Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

## 安全须知 • 中文

这个符号提示用户该设备用户手册中有重要的操作和维护说明。

这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

### 注意

**阅读说明书** • 用户使用该设备前必须阅读并理解所有安全和使用说明。

**保存说明书** • 用户应保存安全说明书以备将来使用。

**遵守警告** • 用户应遵守产品和用户指南上的所有安全和操作说明。

**避免追加** • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

### 警告

**电源** • 该设备只能使用产品上标明的电源。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过 。

**拔掉电源** • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

**电源线保护** • 妥善布线， 避免被踩踏，或重物挤压。

**维护** • 所有维修必须由认证的维修人员进行。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

**通风孔** • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。 不要用任何东西挡住通风孔。

**锂电池** • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

## FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

**NOTE:** This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.


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## Trademarks

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# Introduction

This manual contains information about the Extron® RGB 203 Rxi universal interface with instructions for experienced installers on how to configure and operate the equipment.

The following symbols are used throughout the manual and carry the following meanings:

**TIP:** A Tip provides a suggestion to make setting up or working with the device easier.

**NOTE:** A Note draws attention to important information.

**CAUTION:** A Caution draws attention to things that might damage the equipment.

**WARNING:** A Warning alerts the user to things that might cause injury, death, or other severe consequences.

## RGB 203 Rxi Description

The RGB 203 Rxi (figure 1) is an analog computer-video interface with 300 MHz (-3 dB) video bandwidth, Advanced Digital Sync Processing (ADSP™), and Digital Sync Validation Processing (DSVP™). It accepts three computer-video and two unbalanced computer stereo audio inputs (input 3 is video only). It also features a local monitor output; an RGBHV, RGBS, or RGsB output; and a balanced, line level stereo or mono audio output. The interface features horizontal and vertical centering, level boost and peaking.

Front panel controls, remote contact closure, autoswitching, or an RS-232 remote control system or computer can be used to select among inputs and to shift the output image horizontally and vertically.

The interfaces are rack-mountable or furniture-mountable and have an internal power supply for worldwide power compatibility.

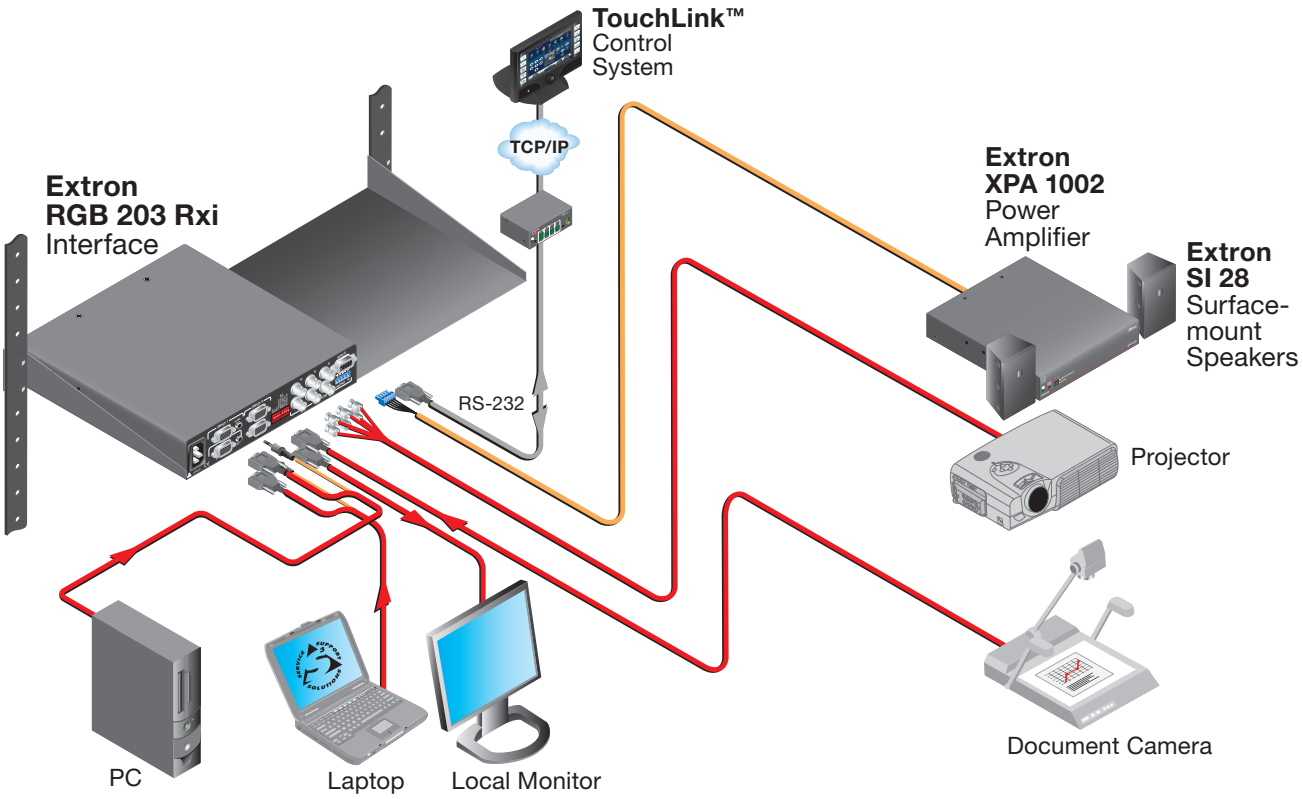



**Figure 1. Typical Application for the RGB 203 Rxi**

## RGB 203 Rxi Features

**Level (boost) and peaking controls —** Separate front panel controls compensate for signal losses from long cable runs.

**Horizontal and vertical centering controls —** Separate front panel controls allow separate horizontal and vertical centering adjustments.

**Sync processing —** Using regular sync processing to allow centering control (H-shift or V-shift) can create problems with some digital display devices as a result of the sync delay. The Extron ADSP option maintains a stable sync signal while allowing centering control. These interfaces also provide another option, Digital Display Sync Processing (DDSP™), to ensure proper displays without altering sync pulse timing or width. The sync processing type is selected via a rear panel DIP switch.

**Digital Sync Validation Processing —** In critical environments or unmanned, remote locations, it is vital to know which sources are active. The Extron exclusive DSVP confirms that input sources are active by scanning all sync inputs for active signals. DSVP provides instantaneous frequency feedback for composite sync or separate horizontal and vertical sync signals via the interface's Remote port.

**Thirty memory presets —** Thirty spaces are reserved in the interface's memory for storing user-defined combinations of horizontal and vertical position settings based upon input signal scan rates. The interface automatically recalls the position settings when it detects an input signal with a matching scan rate.

**LCD scan rate indicator —** This backlit liquid crystal display (LCD) indicates the horizontal and vertical sync rates, and the minimum and maximum centering limits. A DIP switch is provided for turning off the backlight.

**RGBHV, RGBS, or RGsB outputs —** Select the output format via cabling setup and rear panel DIP switch.

**Serration pulse switch —** This DIP switch-selectable feature adds or strips the serration pulses from the output signal to make it compatible with digital display devices. Use the serration pulse switch if flagging or bending occurs at the top of the video display.

**Sync polarity adjustment —** Horizontal and vertical sync output can either follow input sync polarity, or outgoing sync can be forced to positive or negative via an internal jumper.

**Vertical sync pulse width adjustment —** Vertical sync pulse width can be adjusted via a rear panel DIP switch.

**Automatic sync stripping —** Sync signals are automatically stripped from the red, green, and blue video input signals. The interfaces normally output sync simultaneously as separate horizontal and vertical sync and as composite sync, but sync on green (SOG) can be selected via a rear panel DIP switch.

**Remote control input selection —** Connect a remote contact closure keypad, an RS-232 control system, or a computer to the rear panel Remote port to remotely control the interface.

**Stereo audio —** The interface processes unbalanced PC stereo audio inputs as a line level, balanced stereo or mono audio output.

**Front Panel Security Lockout (Executive mode) —** Locks out front panel control of horizontal and vertical shift and input selection.

**Vented metal enclosure —** Vents in the enclosure keep the interface cool and ready for use.

**Flexible mounting options —** The RGB 203 Rxi can be rack-mounted, mounted under a desk or podium, or mounted through a desk or other furniture with optional mounting kits.

# Installation Overview

This section provides an installation overview for the RGB 203 Rxi.

## Installation Overview

To install and set up the RGB 203 Rxi, follow these steps. More detailed instructions are found in the following sections.

- ☐ Turn all of the equipment (computers, remote controls, interface, projector/monitor, local monitor, and speakers or other audio device) off. Disconnect the power cords from the power source.

  **NOTE:** Sync polarity and video clamp configuration require opening the interface's case and must be done before the interface is mounted (see "Internal Configuration").

- ☐ If you want the interface to always output positive sync or negative sync, rather than following the input sync polarity, open the interface and shift internal jumpers as necessary. See "Internal Configuration" and its subsection, "Sync polarity jumpers", on page 6.
- ☐ If you want to clamp the sync timing of the video output to the sync tip rather than the back porch, open the interface and shift an internal jumper. See "Internal Configuration" and its subsection, "Video clamping jumper", on page 7.
- ☐ Install the rubber feet for tabletop use, or install the appropriate brackets and furniture or rack mount the interface. See the "Mounting" section on page 27.
- ☐ Connect the inputs (computers), output (display, local monitor, and audio), and remote control. See "Rear Panel Connections and Switches" on page 8.
- ☐ Set the rear panel DIP switches. See "Rear Panel Connections and Switches" on page 9.
- ☐ Connect power cords and turn on the devices in the following order: output devices (projector, monitors, speakers), remote control device, interface, and source computers.
- ☐ Adjust horizontal and vertical centering, and adjust the level and peaking to obtain the best picture. See "Operation and Troubleshooting" on page 12.

# Internal Configuration

This section provides information about internal configuration of the RGB 203 Rxi, to set the sync polarity jumpers and the video clamping jumper.

## Internal Configuration

The interface is factory configured to output RGBHV or RGBS video with sync that follows the input and is clamped to the back porch. The interface can be configured to output positive or negative sync or to clamp on the sync tip. Any of these reconfigurations require opening the interface's case.

1. Remove the two screws on each side and the two screws on top of the cover (figure 2).

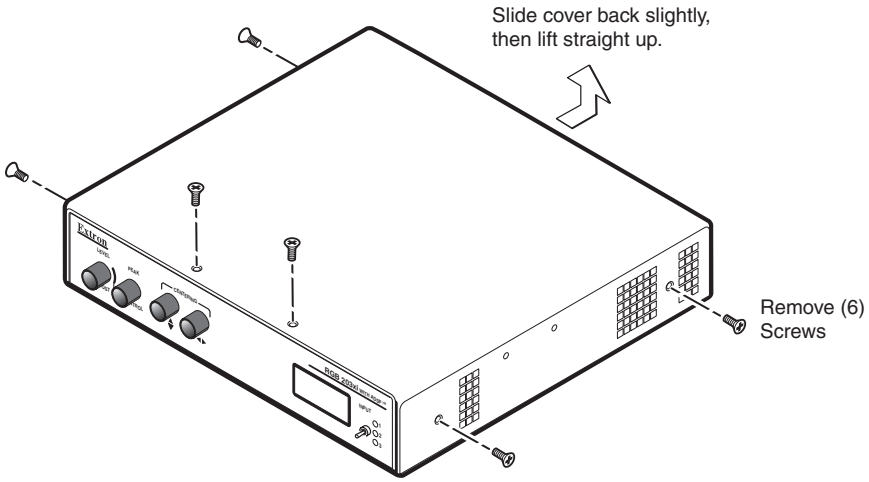



**Figure 2. Opening the interface**

> **CAUTION:** Before removing the cover, take steps to prevent electrostatic discharge, which can damage the unit's circuit boards.

2. Lift the cover off.

3. Configure the interface as desired. See **"Sync Polarity Jumpers"** (below) and **"Video Clamping Jumper"** (page 7) for more information.

   Figure 3 shows the location of all of jumper blocks J6, J7, and J20.

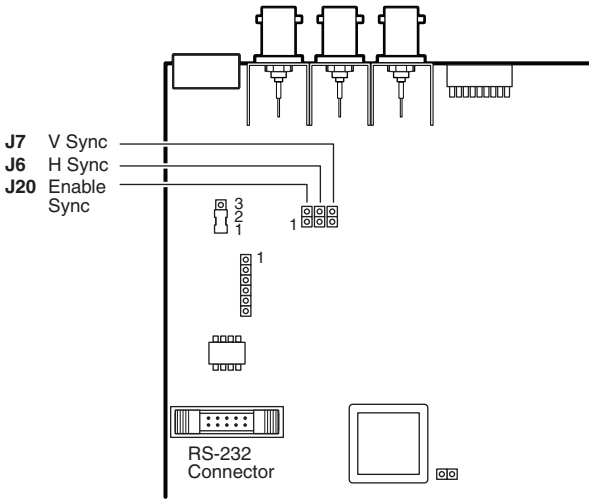



**Figure 3. Jumper locations**

4. Replace the cover and reinstall the screws.

## Sync Polarity Jumpers

The interface is factory configured for the output sync to follow the input sync. To force positive or negative sync, reconfigure the jumper as follows:

1. Locate jumper blocks J6, J7, and J20 on the printed circuit board (see figure 3).
2. For sync follow (output sync polarity identical to the input sync), ensure that the jumper is removed from jumper block J20.
3. For positive or negative sync, ensure that a jumper is installed in jumper block J20 and configure J6 and J7 as follows:

   a. **Vertical sync**

      For positive sync, ensure that a jumper is installed in jumper block J7.

      For negative sync, ensure that the jumper is removed from jumper block J7.

   b. **Horizontal sync**

      For positive sync, ensure that a jumper is installed in jumper block J6.

      For negative sync, ensure that the jumper is removed from jumper block J6.

## Video Clamping Jumper

The interface is factory configured to clamp the sync timing to the back porch. To clamp the sync timing to the tip of the sync pulse, reconfigure jumper 11 as follows:

1. Locate J11 on the printed circuit board (see figure 4).

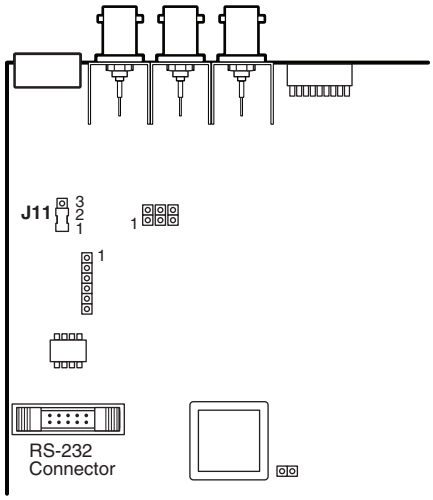



**Figure 4. Jumper locations**

2. For sync timing clamped to the back porch, ensure that a jumper is in place from pin 1 to pin 2.
3. For sync timing clamped to the sync tip, ensure that a jumper is in place from pin 2 to pin 3.

# Rear Panel Connections and Switches

This section provides information about the rear panel connections and switches:

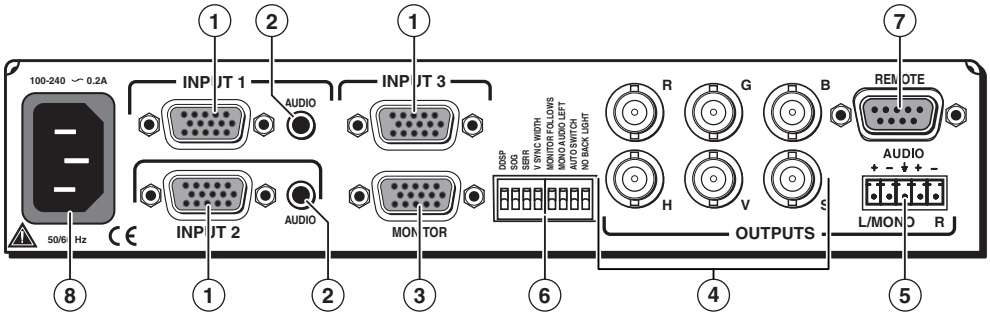



**Figure 5.** **RGB 203 Rxi rear panel features**

① **Video Inputs —** Connect the analog computer-video sources to these female 15-pin HD connectors. There are three video inputs, labelled Input 1, Input 2, and Input 3. Inputs 1 and 2 have audio inputs associated; input 3 has no audio input.

> **NOTE:** Most laptop or notebook computers have an external video port, but may require special commands to output video to that port. Also, the laptop screen may shut off once that port is activated. For more details, see the user's guide for the computer, or contact Extron for a list of laptop keyboard commands.

② **Audio inputs —** Connect unbalanced stereo audio sources to these connectors, using 3.5 mm mini stereo jacks. These two audio inputs accept the audio signals associated with video inputs 1 and 2. Figure 6 shows how to wire the audio jack.

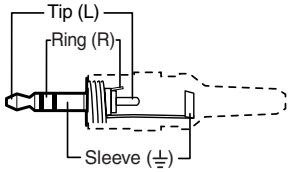


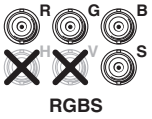

**Figure 6.** **Audio input connector wiring**

③ **Monitor connector —** If desired, connect a local monitor or other device to this female 15-pin HD connector.

④ **BNC output connectors —** Connect a coaxial cable between the display (projector or monitor) and these rear panel BNC connectors.

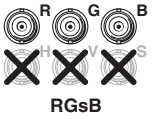
RGBHV

For RGBHV (**separate H and V sync**) output, connect the cables to five BNCs.



RGBS

For RGBS (**composite sync**), connect the cables to four BNCs.



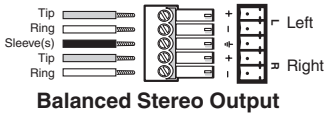
RGsB

For RGsB (**sync on green, SOG**), connect the cables to three BNCs. Also select the SOG option on the rear panel DIP switch (see item ⑥, DIP switches in this chapter).

⑤ **Audio output connector —** Connect an audio device, such as powered speakers, to this 3.5 mm, 5-pole captive screw connector for balanced or unbalanced audio output.

Figure 7 shows how to wire the captive screw audio connector. The connector is included with the interface, but you must obtain the cable. Insert the wires into the appropriate openings in the captive screw connector. Tighten the screws on top to fasten the wires.

Unbalanced Stereo Output



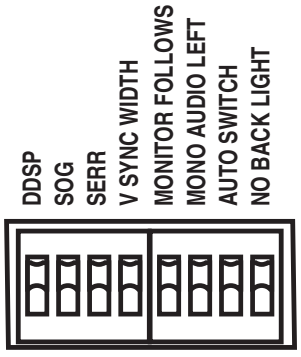
Balanced Stereo Output

**CAUTION**

For unbalanced audio, connect the sleeve(s) to the center contact ground. **DO NOT** connect the sleeve(s) to the negative (-) contacts.

**Figure 7. Wiring the audio output connector**

⑥ **DIP switches —** This bank of DIP switches is used to configure the interface.




**NOTE:** The default for all DIP switches is Off (down).

1. **DDSP or ADSP —** DDSP disables all sync processing. This feature may be necessary for digital display devices such as LCD, DLP (digital light processor), and plasma displays. Use this option if the image is not displayed properly after other options, such as serration pulse and video termination changes, have been tried.

   When this switch is on, the interface uses DDSP instead of ADSP. DDSP does not process the sync signal.

   **NOTE:** DDSP disables the horizontal and vertical centering controls.

   When this switch is off, the interface performs sync processing operations, such as centering, with ADSP.

2. **Sync on Green (SOG) —** allows the interface to output a composite sync signal on top of the green video signal.

   When the switch is on, the interface outputs SOG, on the G connector.

   When the switch is off, the interface outputs separate horizontal and vertical sync (on the H and V connectors for RGBHV) and composite sync (on the S connector for RGBS).

3. **Serration pulses —** allows serration pulses to be removed from the sync signal. Many LCD and DLP projectors and plasma displays will not display properly if serration pulses are present in the sync signal. Flagging or bending at the top of the video image is a sign that the serration pulses should be removed.

   When the switch is on, the interface outputs serration pulses in the vertical sync interval.

   When the switch is off, the interface does not output serration pulses.

4. **Vertical sync pulse width —** allows the vertical sync pulse to be toggled between narrow and wide. For some digital displays, the following problems may occur:

   - No picture appears
   - The picture cuts in and out
   - The picture is scrambled

   Try adjusting the output vertical sync pulse width or switching from ADSP to DDSP.

   When the switch is on, the vertical sync pulse is narrow.

   When the switch is off, the vertical sync pulse is wide.

5. **Local monitor and ID bit termination —** This switch controls the input assigned to the local monitor output and ID bit termination.

   When the switch is on, the local monitor connector follows the input selection and ID bits 4 and 11 are tied to ground.

   When the switch is off, the local monitor output connector is locked to input 1 and ID bits 4 and 11 are unterminated.

6. **Monaural audio output**

   When the switch is on, the mono audio is output in the left channel only.

   When the switch is off, the normal stereo output.

7. **Auto switch**

   When the switch is on, the interface automatically switches to the highest numbered input with sync present.

   When the switch is off, inputs are switched manually.

   **NOTE:** Auto switch works for RGBHV and RGBS video inputs only. Auto switch does not work for RGsB video input.

8. **Backlight illumination —** controls illumination of the LCD backlight.

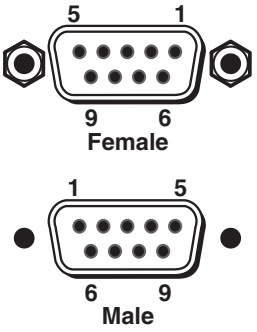
   When the switch is on, the LCD backlight is off, except for three seconds at power-up.

   When the switch is off, the LCD backlight is on while a signal is present at the selected input.

**Summary of DIP switch functions**

| Switch and switch position | | Effect | Switch and switch position | | Effect |
|---|---|---|---|---|---|
| 1 | Up | DDSP, no sync processing | 5 | Up | Monitor to input selection, Ground ID bits 4 and 11 |
| | Down | ADSP | | Down | Monitor tied to in #1, ID bits unterminated. |
| 2 | Up | RGsB output | 6 | Up | Mono or left channel audio |
| | Down | RGBHV or RGBS output | | Down | Stereo audio |
| 3 | Up | Serration pulses | 7 | Up | Autoswitch to highest input # with sync signal present |
| | Down | No serration pulses | | Down | Autoswitching off |
| 4 | Up | Narrow V sync pulse | 8 | Up | LCD backlight off |
| | Down | Wide V sync pulse | | Down | LCD backlight on |

⑦ **Remote connector —** Connect an RS-232 device (control system or PC computer) for remote switching between inputs and remote centering control to this female DB 9 connector (figure 8). Software for RS-232 control is included with the interface. See "Remote Control" for details.




| Pin | RS-232 | Contact closure | Function |
|---|---|---|---|
| 1 | — | Input #1 | Input #1 |
| 2 | TX | — | Transmit data (-) |
| 3 | RX | — | Receive data (+) |
| 4 | — | Input #2 | Input #2 |
| 5 | Gnd | Gnd | Signal ground |
| 6 | — | Input #3 | Input #3 |
| 7 | — | — | — |
| 8 | — | — | — |
| 9 | — | — | — |

**Figure 8. Remote connector pin assignments**

Connect a contact closure remote control device to this 9-pin D female connector for remote switching between inputs.

⑧ **AC power connector —** Connect a standard IEC AC power cord here for power input (100 VAC to 240 VAC, 50-60 Hz) to the internal power supply.

# Operation and Troubleshooting

This section provides information on Operating and Troubleshooting

## Operation

Connect power cords and turn on the display and audio output devices (projectors, monitors, speakers), interface, and input devices (computers). The system is ready for operation.

Select an input using the front panel toggle switch or the remote control (keypad, system, or PC). The image should now appear on screen and sound should be audible. If not, ensure that all devices are plugged in and receiving power. Check the cabling and switch settings, and make adjustments as needed. Select a different input to check for a picture and sound.

If problems persist, see "Troubleshooting" later in this section. If the troubleshooting tips do not help, call the Extron S3 Sales and Technical Support Hotline.

### Front Panel Controls and Indicators

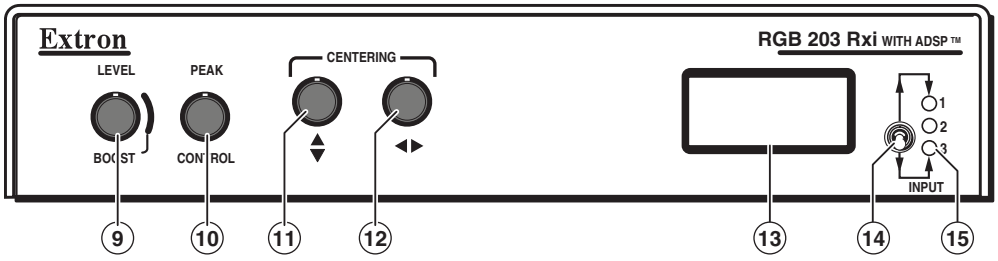
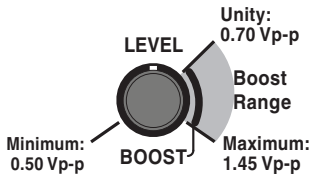



**Figure 9.** RGB 203 Rxi front panel

#### Level and peaking controls

⑨ **Level/boost control —** The Level/boost control alters the video output voltage to affect the brightness of the displayed image. Adjust the knob while viewing the displayed image to set the level/boost that provides the best picture quality.




If the interface receives a typical (0.7 Vp-p) analog computer video input, the output is as follows:

- At the minimum level setting (the counterclockwise limit of this control), the interface outputs video at 0.5 Vp-p.

- Unity level is 0.7 Vp-p, the same as the input signal. Set the control to just before the boost range (indicated by the red line on the interface, the shaded area on the illustration to the left) to output unity level video.
- At the maximum level setting (the clockwise limit of this control), the interface outputs video at 1.45 Vp-p.

  Select a setting in the boost range (0.7 volts and above), to compensate for the decrease in signal level that occurs when the signal passes through long cables.

  Set the boost at 100% (the maximum level) for cable lengths over 500 feet for all computer signals of 15 kHz to 150 kHz.

⑩ **Peaking (Peak) control —** Peaking affects the sharpness of a picture. Increased peaking can compensate for detail (mid- and high-frequency) loss from low bandwidth system components or capacitance in long cables. The minimum setting (at the counterclockwise limit) provides no peaking. The maximum setting (at the clockwise limit) provides 100% peaking. Adjust this control while viewing the displayed image to obtain the optimum picture sharpness.

## Centering controls

Many projectors store centering information in their own memories based on signal frequency. When a projector displays video from different input sources that have the same frequency, one source's images may not be centered. Using the interface's centering controls eliminates that problem.

⑪ **Vertical centering (▲▼) —** While viewing the displayed image, rotate this control to move the image up or down on the screen. During centering adjustment, the LCD displays V-SHIFT, and it indicates the vertical shift minimum or maximum limit when the centering limit has been reached. See the notes below.

⑫ **Horizontal centering (◄►) —** While viewing the displayed image, rotate this control to move the image to the right or left on the screen. During centering adjustment, the LCD displays H-SHIFT, and it indicates the horizontal shift minimum or maximum limit when the centering limit has been reached.

**NOTES:** DDSP disables the interface's vertical and horizontal centering controls. If DIP switch 1 (DDSP) is set to On and either centering control is rotated, the LCD displays N/A DDSP ON.

To use the display's centering controls rather than the interface's controls, set the DDSP DIP switch to On.

Front panel security lockout, or executive mode (see page 15), disables the interface's vertical and horizontal centering controls. If this mode is on and either centering control is rotated, the LCD displays EXEC MODE ON.

The centering controls have no mechanical limits to rotation. When the minimum or maximum limit of the control is reached, LCD indicates the horizontal or vertical shift limit has been reached and the picture stops moving on the screen.

**Centering memory —** Turning the centering control knobs not only moves the images, but it also stores the horizontal and vertical centering settings in separate memories for each selected input. The interface recalls the centering settings each time an input is selected. Centering adjustments only need to be set once for an application because the settings are saved even when the power is off.

## LCD display

⑬ **LCD display —** The LCD serves two main functions: to display the horizontal and vertical scanning rates of the input signal, and to indicate the horizontal and vertical centering status and limits.

**LCD screen backlight —** The LCD lights for 15 seconds at power-up, and it remains lit as long as an input signal is present at the selected input. To force the backlight to remain off at all times except at power-up, set DIP switch 8 (No Backlight) on the rear panel to On (up).

**Scan rate indication —** When the interface is powered on, the LCD lights for 15 seconds while it determines whether an input sync signal is present. If DIP switch 8 is set to On (up), the LCD lights for three seconds only.

- If the interface does not detect an input sync signal, the LCD goes dark and displays NO SIGNAL until the interface receives an active sync signal.
- If the interface detects an input sync signal, the LCD displays the horizontal and vertical scan rates (sync frequencies) in the following format:

  H*xxx.xx*k Hz
  V*xxx.x*Hz

  The first line shows the horizontal rate in kHz; the second line shows the vertical rate in Hz.

**Centering indications —** While the vertical (▲▼) or horizontal (◄►) centering (shift) controls are being adjusted, the LCD displays H-SHIFT or V-SHIFT. That message remains on the LCD (in place of the scan rates) until the centering control has been inactive for 3 seconds. When a centering control reaches its minimum or maximum limit, the LCD displays MIN or MAX on the line below H-SHIFT or V-SHIFT.

Once the centering controls are no longer active, the centering settings are saved, and the LCD displays the current scan rates.

If DIP switch 1 (DDSP) on the rear panel is set to On (up) and a centering control is rotated, the LCD displays N/A DDSP ON, and the image does not shift on screen.

### Input selection

⑭ Input selection switch — The Input selection toggle switch selects among inputs 1, 2, and 3 (figure 2-11). Each time you move the switch down, the interface switches to the next lower input (in the order that the inputs are listed on the front panel): input 1 → input 2, input 2 → input 3, input 3 → input 1. Moving the switch up selects the next higher input (in the order that the inputs are listed on the front panel). The switch returns to the center position automatically.

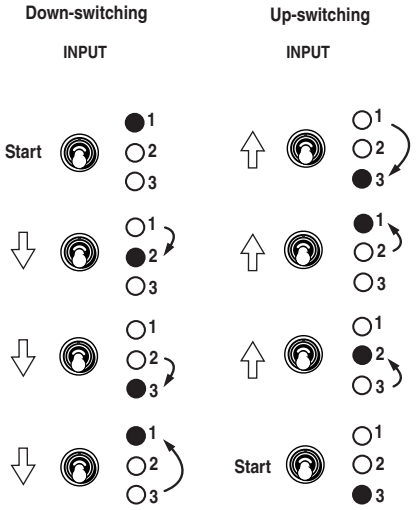



**Figure 10. Switching among inputs**

A remote RS-232 control system or computer or a contact closure switch, connected via the rear panel Remote port, can also switch among the inputs.

**NOTES:** Front panel security lockout (see below) disables the Input selection switch. If the lockout mode is on and the Input selection switch is operated, the input channel does not change and the LCD displays EXEC MODE ON.

The interface handles audio on inputs 1 and 2 only. When you select input 3, the audio output is muted.

⑮ Input LED — The lit LED indicates the selected input.

## Front Panel Security Lockout (Executive Mode)

Front panel security lockout limits the operation of the interface from the front panel. When the lockout mode is on, the front panel Vertical centering (▲▼), Horizontal centering (◄►), and Input selection functions are disabled.

To toggle the lockout mode on or off, hold down the Input selection switch for approximately five seconds. The LCD displays EXEC MODE ON to indicate the mode change. Release the switch. To toggle the lockout mode off, hold down the Input selection switch again until the LCD displays EXEC MODE OFF.

# Troubleshooting

Turn on the input devices (computer, audio device) and output device(s) (projector, monitors, speakers). The image should now appear on the screen and sound should be audible.

## If the Image Does Not Appear or There Is No Sound

1. Ensure that all devices are plugged in.
2. Make sure that each device is receiving power. The front panel LCD lights if the interface is receiving power and an active sync signal.
3. Check the cabling and the audio connector wiring and grounding, and make adjustments as needed.
4. For digital display devices (including LCD, DLP and plasma devices), try turning DIP switch 1 (DDSP) On (up) or Off (down) on the rear panel.
5. To test the system setup and output, substitute a video test generator for one of the computer inputs. To use a stand-alone VTG, unplug the input and output devices' and the interface's power cords, replace the video source with a VTG, then reconnect power cords to restore AC power.
6. Call the Extron S3 Sales and Technical Support Hotline if needed.

## If the Image Is Not Displayed Correctly

1. If the output image looks too green, the sync on green (SOG) DIP switch (switch 2) may be set to On (up), and the display device may not be configured to handle SOG signals. Set the switch to Off (down).
2. If the picture bends or flags at the top of the screen, set the serration pulse DIP switch (switch 3) to Off (down).
3. For a display device that experiences intermittent glitches, try turning DDSP On (up) or Off (down) using DIP switch 1 on the rear panel.
4. If the picture "hangs off" the edges of the screen, adjust the centering controls (◄►, ▲▼).
5. If the edges of the image seem to exceed their boundaries or if thin lines and sharp edges look thick and fuzzy, try changing the Level/Boost or Peak Control settings. If the image is too bright, decrease the boost or peaking level.
6. If the image still does not display correctly, call the Extron S3 Sales and Technical Support Hotline.

## If the Interface Does Not Respond to Controls

1. ◄► knob and ▲▼ knob — If you cannot adjust the horizontal centering, DDSP may be in use. Ensure that DIP switch 1 (DDSP) on the rear panel is Off (down).
2. ◄► knob, ▲▼ knob, and Input selection switch — If you cannot shift between inputs or adjust the horizontal centering from the front panel, but you can operate the interface via a remote control, the interface may be in front panel security lockout mode. Toggle the lockout mode off, see "Front Panel Security Lockout (Executive mode)" on page 15.

## If the Image Is Not Correctly Centered

If the picture from a new source computer does not seem correctly centered, the input position memory presets might require resetting. Reset the input position memories as follows:

1. Unplug the interface's AC power cord.
2. Hold down the input selector switch while you plug in the interface's AC power cord and wait approximately 5 seconds.
3. Select the appropriate input and adjust the horizontal and vertical centering.

## If Auto Switching Does Not Work

Auto switch works for RGBHV and RGBS video inputs only. Auto switch does not work for RGsB video input.

**NOTE:** The selection of RGsB video output on rear panel DIP switch 2 has no effect on autoswitching.

# Remote Control

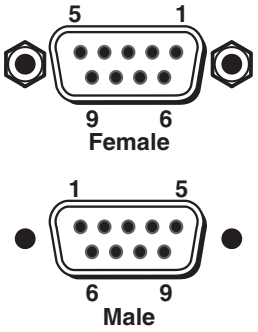
This section provides information on various ways to control the RGB 203 Rxi remotely:

- Simple Instruction Set (SIS™) Control
- Command/response Table for SIS Commands
- Control Software for Windows
- Contact Closure Remote Control

## Simple Instruction Set (SIS™) Control

### Connecting a PC

The rear panel Remote connector of the interface (Figure 11) can be connected to the serial port output of a host device, such as a computer or control system or to a remote contact closure device. Remote communications with the switcher are via the Extron Simple Instruction Set, the Extron Windows-based control program, or pin-programmed in the case of a contact closure device.




| Pin | RS-232 | Contact closure | Function |
|---|---|---|---|
| 1 | — | Input #1 | Input #1 |
| 2 | TX | — | Transmit data (-) |
| 3 | RX | — | Receive data (+) |
| 4 | — | Input #2 | Input #2 |
| 5 | Gnd | Gnd | Signal ground |
| 6 | — | Input #3 | Input #3 |
| 7 | — | — | — |
| 8 | — | — | — |
| 9 | — | — | — |

**Figure 11. Remote connector pin assignments**

The RS-232 protocol of the rear panel Remote connector is 9600 baud, 1 stop bit, no parity, and no flow control.

### Host-to-interface Communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When a command is valid, the interface executes the command and sends a response to the host device. All responses from the interface to the host end with a carriage return and a line feed (CR/LF = ]), which signals the end of the response character string. A string is one or more characters.

## Interface-initiated Messages

When a local event such as a front panel or contact closure selection or adjustment takes place, the interface sends a message to the host. No response is required from the host. The interface-initiated messages are listed here (underlined). The interface displays the copyright message when it first powers on. Vx.xx is the firmware version number.

(C) Copyright 2003, Extron Electronics, RGB 203 Rxi, Vx.xx ↵

When a change is made via a front panel control or another operation occurs that must be written to a new memory block, the interface sends the reconfiguration message.

RECONFIG ↵

No response is required from the RS-232 host, but the host may request a new status listing via the request information command (I/i). See the command/response table in this chapter for details.

## Error Responses

When the interface receives a valid SIS command, it executes the command and sends a response to the host device. If the interface is unable to execute the command because the command is invalid or it contains invalid parameters, it returns an error response to the host. The error response codes and their descriptions are as follows:

E01 – Invalid input number (the number is too large or small)

E06 – Invalid input selection

E10 – Invalid command

E13 – Invalid value (the number is out of range/too large)

## Timeout

Pauses of 10 seconds or longer between command ASCII characters result in a timeout. The command operation is aborted with no other indication.

## Using the Command/Response Table

The command/response table is on page 20. Lower case letters are allowed in the command field only as indicated. Symbols are used throughout the table to represent variables in the command/response fields. Command and response examples are shown throughout the table. The ASCII to HEX conversion table, on the next page, is for use with the command/response table.

## Symbol Definitions

↵ CR/LF (carriage return/line feed) (0x0D 0A)

• Space

X1 Input number 1, 2, or 3

X2 Shift control range -127 to +127

X3 Controller firmware version (listed to two decimal places, "*x.xx*")

X4 *xxx.xx* Frequency in Hz or kHz

X5 Input selected 1 - 3 (for input 1 through 3)

| ASCII to HEX Conversion Table | | |

# Control Software for Windows®

The included RGB 201/203/580 Control Program, graphical control software for Windows, offers another way to control the interface. The control software is compatible with Windows 3.1, 3.11, 95/98, and above.

## Installing the Software

Insert the disc provided into the computer's CD/DVD ROM drive. If the Extron Software DVD Window does not open automatically, open "My Computer" and run Launch.exe from the CD/DVD ROM directory. Select the Software tab, locate the RGB 201/203/580 Control Program program and click Install. Follow the on screen instructions.

By default the installation creates a C:\RGB201 directory, and it places two icons (RGB 201 Control Pgm and RGB 201 Help) into a group or folder named "Extron Electronics".

## Using the Software

To run the control program, follow these steps:

1. Double-click on the RGB 201 Control Program icon in the Extron group or folder, or on the Rgb201.exe icon in the C:\RGB201 directory. The Comm menu appears on the screen.

2. Click on the comm port that is connected to the interface's RS-232 port. The control software checks for the interface at that port and reads its configuration.

   The control program window (figure 11) appears and displays current settings.

**Figure 12. RGB 203 Control program window**

## Using the Help System

For information about program features, you can access the help program in any of the following ways:

- From the Extron Electronics program group, double-click on the RGB 201 Help icon.
- From within the RGB 201 Control Program, click on the Help entry on the task bar.
- From within the switcher control program, press the F1 key.

## Contact Closure Remote Control

The rear panel Remote connector also provides a way to select an input to the interface using a remote contact closure device. Contact closure control uses pins on the Remote connector that are not used by the RS-232 interface. The contact closure pin assignments are shown in figure 11 on page 18.

To select a different input number using a contact closure device, momentarily short the pin for the desired input number to logic ground (pin 5). To force one of the inputs to be always selected, leave the short to logic ground in place. The short overrides front panel input selections.

**NOTE:** Shorting the contact closure pin to override the front panel selection will not work if the interface is in auto switch mode (see Auto switch in the "DIP Switch" section on page 10).

# Reference Information

This section provides information about:


- Specifications
- Included Parts
- Optional Accessories


## Specifications

### Video

| | |
|---|---|
| Routing | 3 x 1 router |
| Gain | 0.5 V to 1.45 Vp-p |
| Bandwidth | 300 MHz (-3 dB) |
| Rise time | 1.5 ns |

### Video input

| | |
|---|---|
| Number/signal type | 3 analog VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs |
| Connectors | 3 female 15-pin HD |
| Nominal level | 0.7 Vp-p for RGB |
| Minimum/maximum levels | Analog: 0.3 V to 1.45 Vp-p with no offset at unity gain |
| Impedance | 75 ohms |
| Horizontal frequency | 15 kHz to 150 kHz |
| Vertical frequency | 40 Hz to 140 Hz |
| Return loss | <-30 dB @ 5 MHz |
| DC offset (max. allowable) | 4 V |

### Video output

| | |
|---|---|
| Number/signal type | 1 analog RGBHV, RGBS, RGsB |
| Connectors | 6 female BNC |
| Nominal level | 0.7 Vp-p for RGB |
| Minimum/maximum levels | 0.3 V to 1.30 Vp-p |
| Impedance | 75 ohms |
| Return loss | -30 dB @ 5 MHz |
| DC offset | ±5 mV maximum with input at 0 offset |

## Sync

| | |
|---|---|
| Input type | RGBHV, RGBS, RGsB, RsGsBs |
| Output type | RGBHV, RGBS, RGsB |
| Input level | 2 V to 5.5 Vp-p with ±0.2 VDC offset max. |
| Output level | TTL: 4V to 5V p-p, unterminated |
| Input impedance | 510 ohms |
| Output impedance | 75 ohms |
| Max. propagation delay | 85 ns |
| Max. rise/fall time | 2 ns |
| Polarity | RGBHV: tracks polarity (or force negative sync via internal jumper)<br>RGBS, RGsB: negative |

## Audio

| | |
|---|---|
| Routing | 2 x 1 stereo router |
| Gain | Unbalanced output: 0 dB; balanced output: +6 dB |
| Frequency response | 20 Hz to 20 kHz, ±0.05 dB |
| THD + Noise | 0.03% @ 1 kHz, 0.3% @ 20 kHz at nominal level |
| S/N | >90 dB at rated maximum output (17 dBu), balanced (unweighted) |
| Crosstalk | <-90 dB @ 1 kHz, fully loaded |
| Stereo channel separation | >90 dB @ 1 kHz |

## Audio input

| | |
|---|---|
| Number/signal type | 2 PC level stereo, unbalanced |
| Connectors | (2) 3.5 mm mini audio jacks (female) |
| Impedance | >10k ohms, unbalanced, DC coupled |
| Nominal level | -10 dBV (316 mVrms) |
| Maximum level | +8.5 dBu, (balanced or unbalanced) at 1% THD+N |

**NOTE:** 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

## Audio output

| | |
|---|---|
| Number/signal type | 1 buffered stereo (2 channel) or mono, balanced/unbalanced |
| Connectors | (1) 3.5 mm captive screw connector, 5 pole |
| Impedance | 50 ohms unbalanced, 100 ohms balanced |
| Gain error | ±0.1 dB channel to channel |
| Maximum level (Hi-Z) | >+14 dBu, balanced at 1% THD+N |
| Maximum level (600 ohm) | >+8.5 dBm, balanced at stated %THD+N |

## Control/remote — interface

| | |
|---|---|
| Serial control port | RS-232, female 9-pin D connector (also used for contact closure) |
| Baud rate and protocol | 9600 baud, 8 data bits, 1 stop bit, no parity |
| Serial control pin configuration | 2 = TX, 3 = RX, 5 = GND |
| Contact closure | 1 female 9-pin D connector (also used for RS-232) |
| Contact closure pin configuration | 1 = input #1, 4 = input #2, 5 = GND |
| Program control | Extron control/configuration program for Windows®<br>Extron Simple Instruction Set (SIS™) |

## General

| | |
|---|---|
| Input power | 100 VAC to 240 VAC, 50-60 Hz, 18 watts, internal |
| MBC power jacks | 9.0 VDC, 0.15 A |
| Temperature/humidity | Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing<br>Operating: +32 to +113 °F (0 to +45 °C) / 10% to 90%, noncondensing |
| Cooling | Convection, vents on left and right sides |
| Mounting | |
| Rack mount | Yes, with optional 1U rack shelf |
| Furniture mount | Yes, with optional under-desk mounting kit or through-desk mounting kit |
| Enclosure type | Metal |
| Enclosure dimensions | 1.75" H x 8.75" W x 8.0" D (1U high, half rack wide)<br>(4.4 cm H x 22.2 cm W x 20.3 cm D;<br>with rear BNCs, D = 8.4" [21.3 cm])<br>(Depth excludes knobs.) |
| Product weight | 2.2 lbs (1.0 kg) |
| Shipping weight | 5 lbs (3 kg) |
| Vibration | ISTA 1A in carton (International Safe Transit Association) |
| Regulatory compliance | |
| Safety | CE, c-UL, UL |
| EMI/EMC | CE, C-tick, FCC Class A, ICES, VCCI |
| MTBF | 30,000 hours |
| Warranty | 3 years parts and labor |

**NOTE:** All nominal levels are ±10%.

Specifications are subject to change without notice.

## Included Parts

| Description | Part Number |
|---|---|
| RGB 203 Rxi | 60-508-01 |
| 3.5 mm, 5-pole captive screw connector | 100-460-01 |
| IEC power cord | |
| Rubber feet | |
| Extron Software Products disc | |
| Tweeker | |
| RGB 203 Rxi Setup Guide | |

## Optional Accessories

| Description | Part Number |
|---|---|
| Under-desk mounting bracket kit | 70-077-01 |
| Through-desk mounting bracket kit | 70-077-02 |
| RSU 126: 6 inches deep, 1U rack shelf kit | 60-190-10 |
| RSB 126: 6 inches deep, 1U basic rack shelf | 60-604-11 |
| RSU 129, 9.5 inches deep, 1U rack shelf kit | 60-190-01 |
| RSB 129: 9.5 inch deep, 1U basic rack shelf | 60-604-02 |
| VGA-A M-M BK 3 feet (0.9 m) to 50 feet (15.2 m) | 26-490-0x |
| VGA-A 90M-M BK 3 feet (0.9 m) to 12 feet (3.6 m) | 26-510-0x |
| VGA-A 90UM-M BK 3 feet (0.9 m) to 12 feet (3.6 m) | 26-510-2x |
| MVGA-A M-F 3 feet (0.9 m) to 25 feet (7.6 m) | 26-565-0x |
| MVGA-A M-M 3 feet (0.9 m) to 25 feet (7.6 m) | 26-566-0 |
| Mac adapter kit with audio | 70-156-01 |
| 13W3 adapter kit with audio | 70-157-03 |
| MHR-5 BNC  3 feet (0.9 m) to 100 feet (30.4 m) | 26-260-xx |
| MHR-5P BNC  3 feet (0.9 m) to 100 feet (30.4 m) | 26-378-0x |

# Mounting

This section outlines the various mounting options available for the RGB 203 Rxi. Select an option from the list below and follow the instructions that come with the appropriate kit.

The instructions are also available on the Extron Web site (www.extron.com).

- Tabletop Placement
- Rack Mounting
- Under-desk Mounting
- Through-desk Mounting

## Tabletop Placement

Attach the four provided rubber feet to the bottom of the unit and place it in any convenient location.

## Rack Mounting

### UL Guidelines for Rack Mounting

The following Underwriters Laboratories (UL) guidelines are relevant to the safe installation of this product in a rack:

1. **Elevated operating ambient temperature —** If the unit is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the equipment in an environment compatible with the maximum ambient temperature (Tma: +113 °F, +45 °C) specified by Extron.
2. **Reduced air flow —** Install the equipment in the rack so that the equipment gets adequate air flow for safe operation.
3. **Mechanical loading —** Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
4. Circuit overloading — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Give appropriate consideration to the equipment nameplate ratings when addressing this concern.
5. Reliable earthing (grounding) — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

### Rack Mounting Procedure

The unit can be mounted on any of these optional Extron rack systems:

- **RSU 126:** 6 inch deep, 1U rack shelf kit (part #**60-190-10**)
- **RSB 126:** 6 inch deep, 1U basic rack shelf (part #**60-604-11**)
- **RSU 129:** 9.5 inch deep, 1U rack shelf kit (part #**60-190-01**)
- **RSB 129:** 9.5 inch deep, 1U basic rack shelf (part #**60-604-02**)

To mount the amplifier on a rack shelf, follow the instructions provided with the shelf accessories.

## Under-desk Mounting

Mount the interface under a desk by following the instructions coming with the optional under-desk brackets (part **#70-077-01**).

## Through-desk Mounting

Mount the interface through a desk by following the instructions that come with the optional through-desk mounting kit (part **#70-077-02**).

# Extron Warranty

Extron® Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Japan: Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or a modification to the product that was not authorized by Extron.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at

- 714.491.1500 (USA),
- 31.33.453.4040 (Europe),
- 65.383.4400 (Asia), or
- 81.3.3511.7655 (Japan)

to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

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